

BLOOD CULTURE

I. GENERAL CONSIDERATIONS

Bacteremia is defined as the presence of bacteria in the bloodstream. Although transient bacteremia occurs in every individual (for example, following vigorous tooth brushing), the association of bacteremia with active replication of bacteria in the bloodstream and signs and symptoms of sepsis (septicemia) is a life threatening condition and requires appropriate diagnosis by collection of blood cultures.

The primary blood culture system used in the Microbiology Laboratory is the BacT/Alert (FAN aerobic and standard anaerobic) bottle system.

II. SPECIMEN COLLECTION

A. Skin Antisepsis-WASH HANDS THOROUGHLY BEFORE BEGINNING THIS PROCEDURE

Patients < 2 months:

- (1) After palpating to isolate the vein, the venipuncture site should be vigorously cleansed with 70% isopropyl alcohol and then swabbed concentrically starting at the center with 10% povidine-iodine solution. The alcohol removes soil and organic material that may render the iodine inactive. The skin of patients with known hypersensitivity to iodine can be prepared with a double application of alcohol.
- (2) The iodine disinfectant should be allowed to dry for at least two minutes and then removed with alcohol before collecting blood; the vein should not be palpated further at this time.
- (3) The rubber diaphragm tops of the blood culture bottles should be disinfected with **alcohol but not iodine** and allowed to dry. Be sure to check the expiration date of bottles before using.

Patients > 2 months:

- (1) Remove the Chloraprep applicator from plastic pouch; check expiration date.
- (2) Grasp by plastic "wings" (avoid touching the sponge) and pinch the applicator wings to break the ampule and release the antiseptic.
- (3) Wet the sponge uniformly by repeatedly pressing the sponge against the treatment area until fluid is visible on the skin.
- (4) Prep the skin by using repeated back and forth strokes with the sponge applicator with moderate pressure for 30 seconds.
- (5) Allow the skin to dry for 30 seconds.
- (6) Without further palpating the skin, perform venipuncture.



NOTE: Use only isopropyl alcohol pads to disinfect the tops of blood culture bottles or Isolator blood culture tubes. **Do not use Chloraprep for this purpose.**

B. Venipuncture - Gloves should be worn during the procedure

- (1) Blood should be drawn with a needle and syringe (or butterfly) and distributed evenly to 2 blood culture bottles (1 aerobic and 1 anaerobic). If a vein is missed initially, a new needle should be used for each repeat venipuncture. Because blood culture bottles are evacuated and under negative pressure, **care should be taken not to inject the entire volume** into a single bottle.
- (2) Generally, blood should **not** be collected from indwelling intravascular catheters unless venipuncture is impossible or catheter-associated infection is suspected. In this latter case, separate blood cultures should be collected by peripheral venipuncture and catheter draw.

C. Initial Routine Blood Culture

- (1) Collect two sets of BacT/Alert bottles by separate venipuncture - one FAN aerobic (green label) and one anaerobic (purple label) bottle is considered one set.
- (2) The amount of blood collected depends on the weight of the patient. Refer to the following chart for optimal volume collection. Please note that these are recommendations and samples will not be rejected if less volume is obtained.

Volume of blood to collect per each blood culture collection (based on patient's weight)					
Patient Weight	< 1kg	1.1-2.0 kg	2.1-12.7 kg	12.8- 36.3 kg	>36.3 kg
	<2.2 lb	2.2- 4.4 lb	4.5- 27 lb	28- 80 lb	>80 lb
Amount of Blood	2 mL (1ml/bottle) Divide between the blood bottles unless < 1 mL obtained. If < 1 mL obtained, inoculate all into aerobic bottle	4 mL (2ml/bottle) Divide between the blood bottles If < 1 mL obtained, inoculate all into aerobic bottle	6 mL (3 ml/bottle) Divide between the blood bottles	10 mL (5ml/bottle) Divide between the blood bottles	20 mL (10ml/bottle) Divide between the blood bottles



Laboratory Services
Collection Procedures

If <1.0 mL of blood is obtained, inoculate the entire volume into the FAN (green label) bottle. Immediately mix the contents by gently swirling the bottles several times.

- (3) Label specimens at draw station in the presence of the patient and ask for parent/guardian to verify every tube is labeled and has correct spelling of child's full legal name once the label has been placed on sample(s). Standard labeling requirements include:
- Full Legal Patient Name
 - Test Requisition Barcode, Medical Record Number or DOB
 - Date & time of collections (documented on sample or requisition)
 - Tech code of phlebotomist or Name of phlebotomist if not an employee of NCH
- (4) Two blood cultures collected 15-30 min. apart from separate venipuncture sites are sufficient to diagnose most cases of septicemia.

